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EXAMINER	
LIU, LI	

ART UNIT	PAPER NUMBER
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,146	SPILMAN ET AL.	
	Examiner	Art Unit	
	Li Liu	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claim 1 have been fully considered but they are not persuasive.

Applicant's argument – "Kantschuk discloses that, when a modem pool has to use the same bit rate to send and receive data, conventional negotiation techniques are used between corresponding modems in the two modem pools to set a common bit rate. .... Thus, Kautschuk does not disclose the steps recited in amended claim 1".

Examiner's response – Kantschuk actually discloses that the methods of FIGS. 2 and 3 **may** be applied **simultaneously** at two modem pools that are in communication with each other and that cannot accommodate different bit rates in the upstream and downstream directions. After each iteration is completed, both modem pools may negotiate the desired bit rates using conventional modem negotiation techniques. The rate that is decided for the i^{th} modem may be chosen as the lower of the two bit rates computed **for it and its counterpart modem**. As shown in Figure 2 and 3, Kantschuk teaches to adapt the initial rate based upon en error condition by causing the modem to transmit and receive at a different rate.

2. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantschuk (US 6,744,811) in view of admitted prior art and Shinichi et al (English Translation of Japanese Patent: JP09-261180).

1). With regard to claim 1, Kantschuk discloses a rate adaptive system for communication networks comprising:

a plurality of transceivers (10 and 12 in Figure 1) capable of transmitting and receiving signals at a plurality of rates to each other (e.g., column 2 line 29-38), and

wires linked to said transceivers (18 in Figure 1),

wherein said system is configured to cause said transceivers to transmit and receive signals at an initial rate (column 4 line 53-67) and to adapt said initial rate based upon an error condition (Figures 2 and 3, column 5 line 1 to column 6 line 26) by causing said transceivers to transmit and receive at different rate (120 in Figure 2, 320 in Figure 3; column 5 line 1 to column 6 line 26).

But, what Kantschuk discloses is a DSL system, not the optical communication network; Kantschuk does not disclose an optical fibre and optical transceivers.

However, as admitted by applicant, "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling

a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s". Although Kantschuk's system deals DSL system, it is obvious that the same principle and method can be used in the optical communication since the problem need to be solved in optical communication is similar to that of DSL.

And another prior art, Shinichi, discloses an optical rate-adaptive system and method (Figures 1-4 and 9, pages 8-10, [0015]-[0018]), in which the space transmission communication device is equipped with a function that can change the transmitting bit rate on the transmitter side and a function that can receive signals in response to this transmission bit rate on the receiver side (page 9, [0016]). And because the transmitter and receiver can handle signals at different bit rates, when the transmission route is temporarily blocked and high-speed data cannot be received at the high bit rate using the required reception power, the transmission bit rate is lowered by performing a switching operation, and communication is switched to low speed transmission. The effect of the obstruction in the transmission route is avoided, communication at the minimum required level is ensured, and the suspension of communication is avoided (page 10, [0018]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adaptive system taught by Kantschuk and Shinichi to the fiber optical communication so that a best use of the optical resources can be obtained and any suspensions of communication can be avoided.

2). With regard to claim 2, Kantschuk in view of the admitted prior art and Shinichi discloses all of the subject matter as applied to claim 1 above. Kantschuk in

view of the admitted prior art and Shinichi further discloses wherein said error condition is a failure to synchronize a received signal (column 4 line 44-46).

3). With regard to claim 3, Kantschuk in view of the admitted prior art and Shinichi discloses all of the subject matter as applied to claim 1 above. Kantschuk further discloses wherein said system is further configured to calculate an error coefficient (SNR or BER is calculated, Figure 3, column 5 line 1-31) based on said received signals, and said error condition comprises said error coefficient exceeding a predefined range (Figure 3, predetermined threshold, column 5 line 1-31).

4). With regard to claim 9, Kantschuk discloses a rate adaptive method for operating a communication network comprising:

transmitting data at an initial rate (Figures 1-3, column 4 line 53-67),

receiving said data at initial rate (Figures 1-3, column 4 line 53-67),

evaluating said data to determine if an error condition exists (Figures 2 and 3, column 4 line 44-46, column 5 line 1 to column 6 line 26), and

adapting said rate based upon said evaluation (Figures 2 and 3, column 5 line 1 to column 6 line 26) by transmitting and receiving at different rate (120 in Figure 2, 320 in Figure 3; column 5 line 1 to column 6 line 26).

But, what Kantschuk discloses is a DSL system, not the optical communication network; Kantschuk does not disclose an optical transceivers.

However, as admitted by applicant, "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s".

Although Kantschuk's system deals DSL system, it is obvious that the same principle and method can be used in the optical communication since the problem need to be solved in optical communication is similar to that of DSL.

And another prior art, Shinichi, discloses an optical rate-adaptive system and method (Figures 1-4 and 9, pages 8-10, [0015]-[0018]), in which the space transmission communication device is equipped with a function that can change the transmitting bit rate on the transmitter side and a function that can receive signals in response to this transmission bit rate on the receiver side (page 9, [0016]). And because the transmitter and receiver can handle signals at different bit rates, when the transmission route is temporarily blocked and high-speed data cannot be received at the high bit rate using the required reception power, the transmission bit rate is lowered by performing a switching operation, and communication is switched to low speed transmission. The effect of the obstruction in the transmission route is avoided, communication at the minimum required level is ensured, and the suspension of communication is avoided (page 10, [0018]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adaptive system taught by Kantschuk and Shinichi to the fiber optical communication so that a best use of the optical resources can be obtained and any suspensions of communication can be avoided.

5). With regard to claim 10, Kantschuk in view of the admitted prior art and Shinichi discloses all of the subject matter as applied to claim 9 above. Kantschuk in view of the admitted prior art and Shinichi further discloses wherein adapting said rate

comprises lowering said initial rate according to predefined percentages of said initial rate in response to said error condition (column 4 line 44-46 of Kantschuk, and [0018] of Shinichi).

6). With regard to claim 12, Kantschuk discloses a transceiver module for a rate adaptive system for communication networks comprising:

means (10 and 12 in Figure 1) for transmitting a signal via a link at a plurality of signal rates (e.g., column 2 line 29-38),

means (10 and 12 in Figure 1) for receiving an optical signal transmitted at said plurality of signal rates (e.g., column 2 line 29-38),

means (column 4 line 44-46) for determining an error condition, and

means for adapting the optical signal transmission rate based upon the error condition (Figures 2 and 3, column 5 line 1 to column 6 line 26) by transmitting and receiving at different rate (120 in Figure 2, 320 in Figure 3; column 5 line 1 to column 6 line 26).

But, what Kantschuk discloses is a DSL system, not the optical communication network; Kantschuk does not disclose optical transceivers and optical signals.

However, as admitted by applicant, "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s". Although Kantschuk's system deals DSL system, it is obvious that the same principle and method can be used in the optical communication since the problem need to be solved in optical communication is similar to that of DSL.

And another prior art, Shinichi, discloses an optical rate-adaptive system and method (Figures 1-4 and 9, pages 8-10, [0015]-[0018]), in which the space transmission communication device is equipped with a function that can change the transmitting bit rate on the transmitter side and a function that can receive signals in response to this transmission bit rate on the receiver side (page 9, [0016]). And because the transmitter and receiver can handle signals at different bit rates, when the transmission route is temporarily blocked and high-speed data cannot be received at the high bit rate using the required reception power, the transmission bit rate is lowered by performing a switching operation, and communication is switched to low speed transmission. The effect of the obstruction in the transmission route is avoided, communication at the minimum required level is ensured, and the suspension of communication is avoided (page 10, [0018]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adaptive system taught by Kantschuk and Shinichi to the fiber optical communication so that a best use of the optical resources can be obtained and any suspensions of communication can be avoided.

5. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantschuk (US 6,744,811) and admitted prior art and Shinichi et al (English Translation of Japanese Patent: JP09-261180) as applied to claim 1 above, and in further view of Gfeller (US 5,808,760).

1). With regard to claim 4, Kantschuk in view of the admitted prior art and Shinichi et al discloses all of the subject matter as applied to claim 1 above. Kantschuk

in view of the admitted prior art and Shinichi et al further discloses wherein said initial rate is lowered in response to said error condition (Figures 2 and 3, column 5 line 46-60).

But, Kantschuk does not expressly disclose that the initial rate is lowered according to predefined percentages of the initial rate.

However, Gfeller, in the same field of endeavor, discloses a four predetermined rate (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9). Gfeller provides an enhanced flexibility in system design and simplification of integration of systems operating with different data rate. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rate adaptive system taught by Gfeller to the communication system of Kantschuk in view of admitted prior art so that an enhanced flexibility in system design and simplification of integration of systems operating with different data rate can be obtained.

2). With regard to claim 5, Kantschuk in view of the admitted prior art and Shinichi et al and Gfeller discloses all of the subject matter as applied to claims 1 and 4 above.

But Kantschuk in view of the admitted prior art and Shinichi et al and Gfeller does not discloses wherein said percentages are selected from the group of 75, 50, and or 25 percent of said initial rate. However, design choice.

Although Kantschuk in view of the admitted prior art and Gfeller doesn't disclose the specific percentages, such limitation are merely a matter of design choice and would have been obvious in the system of Kantschuk in view of the admitted prior art and

Shinichi et al and Gfeller. Gefeller discloses a four predetermined rate (10 MBPS, 1 MBPS, 100 KBPS and 10 KBPS in Figure 6, column 10, line 3-9). The limitations in claims 5 do not define a patentably distinct invention over that in Kantschuk in view of the admitted prior art and Gfeller since both the invention as a whole and Kantschuk in view of the admitted prior art and Gfeller are directed to downshift the rate in predetermined percentages while link failure occurs. Therefore, to downshift by 75, 50 and 25 % or other percentages would have been a matter of obvious design choice to one of ordinary skill in the art.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantschuk (US 6,744,811) and admitted prior art and Shinichi et al (English Translation of Japanese Patent: JP09-261180) as applied to claim 1 above, and in further view of Stener (US 6,690,650).

1). With regard to claim 6, Kantschuk in view of the admitted prior art and Shinichi et al discloses all of the subject matter as applied to claim 1 above. But Kantschuk in view of the admitted prior art and Shinichi et al does not disclose wherein said initial rate is 10 Gb/s.

However, Stener, in the same field of endeavor, discloses that the initial rate is set to the highest possible rate (the initial rate is set to 100 Mb/s, if link failure, the rate is downshifted to 10 Mb/s, column 5, line 38-59). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to set the initial rate at the highest possible rate (e.g. 10 Gb/s) as taught by Stener to the optical communication so that a best use of the optical resources can be obtained.

2). With regard to claim 7, Kantschuk in view of the admitted prior art and Shinichi discloses all of the subject matter as applied to claim 1 above. But, Kantschuk does not disclose wherein said system is configured to operate in an optical Ethernet network.

However, Stener discloses a system configured to operate in an optical Ethernet network (Figure 1, column 3, line 1-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the rate-adaptive system to an optical Ethernet network so that a best use of the optical resources can be obtained.

7. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantschuk (US 6,744,811) and the admitted prior art and Shinichi et al (English Translation of Japanese Patent: JP09-261180) as applied to claims 1, 9 and 10 above, and in further view of Bremer et al (US 6,647,058).

1). With regard to claim 8, Kantschuk and the admitted prior art and Shinichi et al disclose all of the subject matter as applied to claim 1 above. But Kantschuk et al does not expressly disclose wherein said system is further configured to notify a network operator in the event of said error condition.

However, Bremer discloses a network management system (58 in Figure 2) used by a technician to target communication links that will benefit the most from power and/or data rate adaptation (column 9, line 43-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the network manager as taught by Bremer et al to

the communication system of Kantschuk and admitted prior art and Shinichi et al so that rate adaptation can be more efficiently managed, and any fault can be more easily identified.

2). With regard to claim 11, Kantschuk in view of admitted prior art and Shinichi et al discloses all of the subject matter as applied to claim 9 and 10 above. But Kantschuk et al does not expressly disclose that the method further comprises notifying a network operator in the event of said error condition.

However, Bremer discloses a network management system (58 in Figure 2) used by a technician to target communication links that will benefit the most from power and/or data rate adaptation (column 9, line 43-46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the network manager as taught by Bremer et al to the communication system of Kantschuk in view of admitted prior art and Shinichi et al so that rate adaptation can be more efficiently managed, and any fault can be more easily identified.11. The method of claim 10, further comprising notifying a network operator in the event of said error condition.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kantschuk (US 6,744,811) and admitted prior art and Shinichi et al (English Translation of Japanese Patent: JP09-261180) and Bremer (US 6,647,058).

Kantschuk discloses a rate adaptive method for operating a communication network comprising:

transmitting signals at an initial rate (Figures 1-3, column 4 line 53-67),

receiving said signals at said initial rate (Figures 1-3, column 4 line 53-67),

evaluating said signals to determine if an error condition exists (Figures 2 and 3, column 4 line 44-46, column 5 line 1 to column 6 line 26), and

adapting said rate based upon said evaluation by transmitting and receiving at a different rate (Figures 2 and 3, column 5 line 1 to column 6 line 26).

But, what Kantschuk discloses is a DSL system, not the optical communication network; Kantschuk does not disclose the optical transceivers. And Kantschuk does not disclose that the signals are "test signals".

However, as admitted by applicant, "currently there is a vast network of installed optical fiber links of various lengths and bandwidth all of which are capable of handling a variety of transmission rates from a few Gb/s to as high as many 10 of Gb/s". Although Kantschuk's system deals DSL system, it is obvious that the same principle and method can be used in the optical communication since the problem need to be solved in optical communication is similar to that of DSL.

And another prior art, Shinichi, discloses an optical rate-adaptive system and method (Figures 1-4 and 9, pages 8-10, [0015]-[0018]), in which the space transmission communication device is equipped with a function that can change the transmitting bit rate on the transmitter side and a function that can receive signals in response to this transmission bit rate on the receiver side (page 9, [0016]). And because the transmitter and receiver can handle signals at different bit rates, when the transmission route is temporarily blocked and high-speed data cannot be received at the high bit rate using the required reception power, the transmission bit rate is lowered by performing a

switching operation, and communication is switched to low speed transmission. The effect of the obstruction in the transmission route is avoided, communication at the minimum required level is ensured, and the suspension of communication is avoided (page 10, [0018]).

And Bremer et al discloses a test data that can be used to try whether the test data support the data rate (column 6 line 30-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the rate adaptive system and the test signal as taught by Kantschuk and Shinichi and Bremer et al to the fiber optical communication so that a best use of the optical resources can be obtained and any suspensions of communication can be avoided.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kleider et al (US 6,301,265) discloses an adaptive rate system and method for network communications.

Marchetto et al (US 5,914,959 discloses a communication system having an automatically selectable transmission rate.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Liu whose telephone number is (571)270-1084. The examiner can normally be reached on Mon-Fri, 8:00 am - 5:30 pm, alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Li Liu
May 21, 2007

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER